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# INFORMATION REPORT INFORMATION REPORT

## CENTRAL INTELLIGENCE AGENCY



S-E-C-R-E-T

25X1

COUNTRY Hungary

REPORT

SUBJECT

DATE DISTR. 2 MAY 1957

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Ultrasonic Examination of Metals at the Technical University, Budapest

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SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

one-page report (with sketch attached) which contains information on the research work undertaken on behalf of the Hungarian industry at the Technical University in Budapest concerning the ultrasonic inspection methods of metals. The work was particularly undertaken for the purpose to detect flaws occurring in welded metal pieces.

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(Note: Washington distribution indicated by "X"; Field distribution by "#".)

INFORMATION REPORT INFORMATION REPORT

Industrial Work undertaken by the Technical University, BUDAPEST

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1. At BUDAPEST Technical University one of the Research tasks undertaken on behalf of Hungarian industry was an investigation into methods of ultrasonic inspection of metals. The work was particularly concerned with the detection of flaws occurring in welded pieces.

2. An ultrasonic generator, described as an old 'Hughes' type, was applied to one face of the material under examination. A detector was applied to another face of the material, the resulting electrical impulses being displayed on a cathode ray tube. Two basic methods were in use.

(a) Detector and generator were applied to opposite faces of the specimen. If no flaws existed the ultrasonic waves passed straight through the material, but if a flaw existed in the path of the waves they were reflected back to the generator, or were otherwise diverted so that they did not reach the detector.

(b) Detector and generator were applied to the same face of the material but a few centimetres apart. In this case a perfect specimen would allow the passage of the ultrasonic waves which would not arrive at the detector. If a flaw existed, however, the waves would be reflected from it, some of them thus reaching the detector (see attached sketch).

3. [redacted] 25X1

[redacted] the apparatus itself was of a standard type. The work at the University consisted merely of investigating whether certain rule-of-thumb tables could be drawn up to enable fairly unskilled workers to operate the apparatus under factory conditions.



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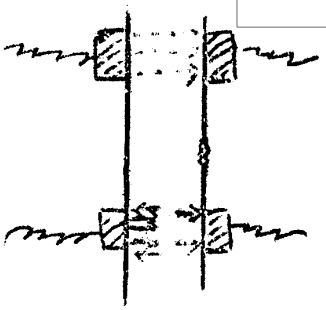
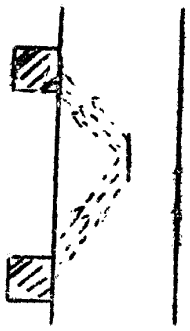


(a) No flaw, waves pass to detector.

(b) Flaw reflects waves back to generator.

METHOD I. Detector and generator on opposite faces of specimen.



METHOD II. Flaw reflects waves to detector on same face as generator.